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A Successful Effort

The thirty-ninth annual general meeting of the Institute of British Foundrymen was held in London last Saturday. Though an austerity affair, the attendance was of the order of 150, and included a very high percentage of those directly responsible for the technical conduct of the industry. The only major change in the list of officers was the election of Mr. Daniel Sharpe as vice-president. This is a well-merited honour, because for many years he has been equally prominent in the affairs of the Institute as well as in industrial circles, both as a manager and a director of some of Scotland's most progressive foundries. The re-election of Major Miles was enthusiastically received, because under his guidance the Institute has made such material progress as to yield record figures of membership, associated with greatly increased usefulness to the industry it serves. The recipients for the three major awards the Institute offers annually were particularly well deserving of the honours bestowed upon them. Mr. P. H. Wilson, the E. J. Fox medallist, provided, when acknowledging the award, a useful documentation of the birth and development of the centrifugally cast-iron pipe process, which will be of lasting historical interest.

Mr. S. H. Russell, as a past-president and treasurer of the Institute, was an obviously popular choice for the award of the Oliver Stubbs medal, not only on account of these services, but also because of the unbroken continuity of his work both locally and nationally from well prior to the last war. Finally Mr. S. W. Wise received the meritorious service medal, and the healthy state of the West Riding Branch which he has controlled for so many years well confirms the choice of the executive committee.

The Papers presented, though few in number, dealt with matters which are of immediate concern to the war effort. The most important document presented was the Report of the Non-ferrous Sub-Committee, because of its great utility in pointing the way to the reduction in tin consumption, whilst still maintaining quality. The discussion drew the attention of the authorities to the fact that the foundry industry could do but little without the co-operation of the Services and Government buying departments. An effort must be made to get these authorities to specify materials which have a reduced tin content or none at all. It was the opinion of some speakers that difficulties would arise in foundries having no metallurgical control to change over to silicon bronzes. This question of co-operation and control was dealt with in a masterly manner in the Edward Williams' Lecture by Dr. H. W. Gillett, the well-known American metallurgist. The operation of the group system for ensuring technical progress has much to commend it, and so far as we can see no drawbacks, provided national institutes flourish for the wider dissemination and publication of material essential for the progress of the whole industry. The whimsicalities contained in Dr. Gillett's address were fully appreciated, because of the skilful and sympathetic presentation by Mr. J. G. Pearce. The ferrous Papers presented dealt with the production of uniform steel for a light castings foundry, and the substitution of high-duty grey iron for steel castings. In spite of the curtailed programme, an American Foundrymen's Association Exchange Paper was also forthcoming, *viz.*, on the subject of a pearlitic malleable cast iron.

The bringing together of so many foundrymen was thoroughly worth while, because informal conversation between technologists quickly reveals where information is available or can be readily obtained to overcome current difficulties. The acceleration recently noted in interest in technical matters must be speeded up as a factor of major importance to the winning of the war.

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ACQUISITION OF REFRACTORY DOLOMITE

The Control of Chrome, Magnesite and Wolfram (No. 3) Order, 1942, which came into operation on June 19, extends the provisions of the Nos. 1 and 2 Orders, by making the acquisition of refractory dolomite (including bricks, cements and compositions) subject to licence. A direction operative from the same date excludes from the licensing procedure any refractory dolomite and any refractory dolomite which has been mixed with a bonding material, but which has not been further processed or manufactured, so that, for the time being, licensing is in effect limited mainly to dolomite bricks and the various stabilised dolomite clinkers.

Chromium Metal Under Control

The new direction also terminates the exception of chromium metal from licensing made by the Control of Chrome, Magnesite and Wolfram (No. 1) Order, 1940, Direction No. 1, and the acquisition of chromium metal is consequently now subject to licence under the Control of Chrome, Magnesite, and Wolfram Orders.

NEWS IN BRIEF

MEMBERS of the Amalgamated Engineering Union are to consider a revision of rules to admit women.

THE REPUBLIC STEEL CORPORATION is constructing five new blast furnaces, increasing its annual pig-iron capacity by 2,200,000 tons.

It is reported from Cork that arrangements have been almost completed for the resumption of operations at the steel mill at Haulbowline, Cork Harbour.

TWO MONTHS AGO W. & T. Avery, Limited, assembled at their Soho Foundry, twenty-four men who had given more than fifty years' continuous service to the firm. Each received an illuminated address, a gold watch and £10. The company have since produced a souvenir book of the occasion with the title "Avery Fifty-year Men."

NEW COMPANIES

("Limited" is understood. Figures indicate capital. Names are of directors unless otherwise stated. Information compiled by Jordan & Sons, 116, Chancery Lane, London, W.C.2.)

Willen Metal Protection, 11, Bruton Street, London, W.1—£2,000. J. Walker and D. Harris.

Drake & Rowntree—Engineers. £1,000. W. R. Drake and A. Rowntree, 9, Kearnsney Avenue, Portsmouth.

East Kent Shipbuilding & Engineering Company, 76, Petty France, London, S.W.1—£3,000. H. C. Notley.

Blaby Engineering Company, Prudential Chambers, Grey Friars, Leicester—£10,000. R. Horwitz and L. Vendyback.

Mahbro Engineering Company—£5,000. C. Mahoney, A. Gilbert and P. Mahoney, 149, Westbrow Drive, Barking, Essex.

WAGE-EARNERS' TAX DEDUCTIONS

The limit below which a taxpayer's weekly wage must not be reduced by tax deductions will be increased from August 1 to £2 for the single taxpayer, £3 for a married couple without children, £4 for a couple with one child, and £5 for a couple with two or more children. The £3 limit in the case of the married taxpayer without children will apply to any taxpayer who has a child for whom the child allowance can be claimed. Similarly, the £4 limit will apply not only to the married couple with one child, but also to the taxpayer with two children, and the £5 limit not only to the married couple with two or more children, but to the taxpayer with three or four children.

Where the single taxpayer has dependants and where in consequence the £2 limit would be too low, if the taxpayer advises the collector, the employer will be instructed to apply the appropriate limit having regard to the taxation allowance to which the taxpayer is entitled in respect of dependant relatives.

MAXIMUM PRICES FOR ALUMINIUM SCRAP

New maximum prices for aluminium scrap are fixed by the Minister of Aircraft Production in Direction No. 2 under the Control of Aluminium (No. 5) Order, 1940. This Direction came into force on June 11, and states that the maximum price of aluminium alloy scrap resulting from any machining operation, or in the form of grindings or filings, will be £50 per ton, delivered free at the works of the buyer, and £44 per ton delivered free at any other place, and that for any other aluminium alloy scrap the maximum price will be £70 per ton and £65 per ton respectively. The Direction also declares that these maximum prices will be inclusive of any packing, loading and transport undertaken by the sellers, and revokes Direction No. 1.

Copies of the new Direction may be purchased from H.M. Stationery Office. All inquiries should be addressed to the Ministry of Aircraft Production, Light Metals Control, Southam Road, Banbury, Oxon.

TECHNICAL TRAINING SPEED-UP

The Council of Sheffield University have agreed, as a wartime measure, to a revision of the academic year in the Faculties of Pure Science, Engineering and Metallurgy. There will be four terms instead of three in each year, each term of the same average length as at present. As a result, a student now starting in one of these Faculties will be able to complete his full degree course in two years and three months instead of the present three years; and students already in the University will complete their courses at correspondingly earlier times. The change is being made in view of the urgent need for trained technical personnel, both in the Forces and in industry.

THE INSTITUTE OF BRITISH FOUNDRYMEN

ANNUAL GENERAL MEETING, 1942

Record Institute Membership and Progressive Branch Activities shown by Annual Report submitted at London Conference

The thirty-ninth annual general meeting of the Institute of British Foundrymen was held at the Waldorf Hotel, London, on Saturday, June 20, Major R. Miles, M.Eng., the President, in the chair. There was a good attendance, and the PRESIDENT, in his opening remarks, said the fact that the members had been able to foregather, despite their pre-occupation with graver matters, was proof that the Institute was very much alive.

Minutes

The minutes of the preceding annual general meeting, held in Manchester on July 12, 1941, were, on the motion of Mr. H. Winterton (Past-President), seconded by Mr. V. Delport, taken as read and were confirmed and signed.

Annual Report Presented

The PRESIDENT presented the annual report of the Council for the year 1941-42, which had been circulated, and called attention to the considerable increase of membership during the past year. The total of more than 2,400 constituted a record. On the motion of the President, seconded by Mr. V. C. Faulkner (Past-President), the report was adopted without discussion.

ANNUAL REPORT, 1941-42

The annual report of the Institute covers the period May 1, 1941, to April 30, 1942.

Finance

The satisfactory subscription revenue during the past year, together with certain adjustments which the war has caused to be made in the Institute's activities, has again enabled a substantial credit balance to be transferred to the Accumulated Fund.

Membership

From Tables I and II it will be seen that there has been a considerable increase in membership. It is with regret that the Council records the death of nineteen members, namely:—

Lord Austin of Longbridge, K.B.E. Elected Honorary Life Member, 1937.

Mr. A. R. Bartlett, Member, London Branch. Elected 1911. Oliver Stubbs Medallist. Past Branch-President. Diploma Holder.

Mr. S. E. Dawson, F.I.C., Member, East Midlands Branch. Elected 1924. Oliver Stubbs Medallist. Past Branch-President.

Mr. J. Deschamps, Member, London Branch. Elected 1927. Member of the Technical Committee, Steel Castings Sub-Committee.

Mr. F. W. Firth, Member, Sheffield Branch. Elected 1914.

Mr. F. J. Hemming, Member, Birmingham Branch. Elected 1929. Past Branch-President.

Mr. R. W. Kenyon, Member, Lancashire Branch. Elected 1904. Past Vice-President of the Institute. Past Branch-President.

Mr. W. A. Oubridge, M.I.Mech. E., Member, Birmingham Branch. Elected 1918.

Mr. H. A. J. Rang, Member, Newcastle Branch. Elected 1912. Past Honorary Secretary of the Newcastle Branch.

Mr. S. B. Rosser, Member, Wales and Monmouth Branch. Elected 1940.

Mr. J. Smith, Member, Newcastle Branch. Elected 1905. Meritorious Services Medallist, 1936. Past Branch-President.

Mr. Joseph Ward, J.P., LL.D., Member, Sheffield Branch. Elected 1908.

Mr. H. Birch, Associate Member, Birmingham Branch. Elected 1916.

Mr. W. G. Cook, Associate Member, Sheffield Branch. Elected 1914.

Mr. W. W. Davies, Associate Member, Wales and Monmouth Branch. Elected 1940.

Mr. E. A. Tait, Associate Member, Middlesbrough Branch. Elected 1930.

Mr. H. Wagstaff, Associate Member, Lancashire Branch. Elected 1939.

Mr. G. Walker, Associate, Birmingham Branch. Elected 1931.

Mr. J. G. Turnbull, Student, Birmingham Branch. Elected 1937.

Honours Conferred upon Members

The following are amongst those who have been honoured during the past year:—

Mr. W. E. Clement (Member) was made a C.B.E. in the New Year's Honours list.

Mr. W. Machin (Member) was a recipient of the M.B.E., in the New Year's Honours list.

Dr. J. E. Hurst (Member) was appointed a Justice of the Peace for the City of Lichfield.

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Mr. Summers Hunter (Member) was appointed a magistrate of Wallsend-on-Tyne.

Dr. T. Swinden (Member) received the 1941 award of the Bessemer Gold Medal of the Iron and Steel Institute.

Mr. P. Pritchard (Member) was elected President of the British Cast Iron Research Association.

Mr. W. B. Lake, J.P. (Past President), Dr. T. Swinden, Mr. P. H. Wilson and Mr. FitzHerbert Wright (Members) were elected Vice-Presidents of the British Cast Iron Research Association.

Mr. J. T. Goodwin, M.B.E. (Past President), was elected an Honorary Member of the British Cast Iron Research Association.

Mr. FitzHerbert Wright (Member) was elected Chairman and Mr. J. D. Carmichael (Member) and Major F. D. Ley (Member) Vice-Chairmen of the Council of Ironfoundry Associations.

Mr. E. R. Walter, Ph.D. (Member), Hon. Secretary of the Lincoln Section, who received his Doctorate during the year, was elected Chairman of the East Midlands Branch of the Institution of Mechanical Engineers.

Awards

E. J. Fox Gold Medal.—On the recommendation of the Assessors, Sir W. J. Larke and Dr. J. E. Hurst, the E. J. Fox Gold Medal for 1941 was awarded to Mr. Percy Pritchard, M.I.A.E., F.R.Ae.S., in recognition of the scientific and technical contributions which he has made to the development of the foundry industry, particularly in the light alloys of aluminium and magnesium. Mr. Pritchard is managing director of Birmid Industries, Limited, Birmingham Aluminium Company, Limited, and the Midland Motor Cylinder Company, Limited.

Oliver Stubbs Gold Medal.—The Oliver Stubbs Gold Medal for 1941 was awarded to Mr. J. J. Sheehan, B.Sc., A.R.C.Sc.I., A.I.C., in recognition of the valuable Papers which he has presented to the Institute, to International Foundry Congresses,

TABLE I.—*Changes in Membership*, 1941–1942

	Subscribing firms.	Members.	Associate members.	Associates.	Associates (students).	Totals.
At April 30, 1941	77	972	1,125	113	30	2,317
Additions and transfers from other grades	3	60	122	5	17	207
	80	1,032	1,247	118	47	2,524
Losses and transfers to other grades	—	24	67	20	6	117
At April 30, 1942	80	1,008	1,180	98	41	2,407

TABLE II.—*Analysis of Membership at April* 30, 1942.

Branch.	Subscribing firms.	Members.	Associate members.	Associates.	Associates (students).	Totals.
Birmingham	9 (8)	164 (160)	155 (160)	15 (16)	4 (6)	347 (350)
East Midlands	5 (5)	83 (80)	140 (110)	3 (5)	1 (2)	232 (202)
Lancashire	13 (13)	122 (119)	199 (196)	20 (22)	2 (2)	356 (352)
London	10 (10)	215 (205)	134 (132)	3 (3)	— (—)	362 (350)
Middlesbrough	1 (1)	34 (31)	48 (45)	6 (8)	15 (5)	104 (90)
Newcastle	6 (6)	28 (30)	18 (26)	30 (41)	7 (7)	89 (110)
Scottish	7 (7)	96 (91)	194 (191)	4 (3)	4 (1)	305 (293)
Sheffield	6 (6)	83 (87)	62 (62)	2 (2)	— (—)	153 (157)
South African	15 (13)	50 (45)	48 (35)	10 (9)	— (—)	123 (102)
Wales & Monmouth	3 (3)	54 (46)	59 (50)	1 (—)	8 (7)	125 (106)
W.R. of Yorks	4 (4)	61 (58)	104 (98)	4 (4)	— (—)	173 (164)
Unattached	1 (1)	18 (20)	19 (20)	— (—)	— (—)	38 (41)
	80 (77)	1,008 (972)	1,180 (1,125)	98 (113)	41 (30)	2,407 (2,317)

Figures in brackets are totals at April 30, 1941.

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and to overseas foundry technical associations, and in recognition of the outstanding contributions which he has made to foundry sands research as Convener of the Sands Sub-Committee of the Technical Committee of the Institute.

Meritorious Services Medal.—This medal for 1941 was awarded to Mr. H. W. Lockwood "in recognition of his outstanding services to the Institute particularly as Honorary Secretary of the London Branch, a member of the Council, and of Standing Committees over a period of several years."

Diplomas.—Diplomas were awarded to the following members during the year: Mr. J. F. Webster (Scottish Branch), Mr. A. E. McRae Smith (London Branch), and Mr. J. M. Stones (South African Branch).

John Surtees' Memorial Competition

In the examinations for 1942, arranged by the Scottish Branch, the following were prizewinners:—

Senior Competition.—Gold medal, no award.

Junior Competition.—Silver Medal and First prize, Thomas M. McKinley. Second prize, Robert McArthur. Third prize, James G. Ogilvie. Fourth prize, William Dickson. Two consolation prizes, E. C. Miller and J. F. Steel.

It should be mentioned that these examinations were the first time when both parts of the examinations were completed by every student and in the opinion of the examiners the Papers were the best ever submitted by students in the Scottish Branch.

Edward Williams Lecture

No Lecture was presented in 1941. Dr. H. W. Gillett, of the Battelle Memorial Institute, U.S.A., will present the Lecture in 1942.

Branch Activities

The East Midlands, Lancashire, London, Scottish, West Riding of Yorkshire, and South African Branches have carried out full syllabuses of meetings. Further meetings have been arranged by the Birmingham, Middlesbrough, Sheffield, and Wales and Monmouth Branches. In addition, the East Anglian, Bristol, Burnley, Lincoln and Falkirk Sections have all had full syllabuses of meetings during the past year. At most meetings satisfactory attendances have been recorded. The Council desires to express its special thanks to Branch Councils and secretaries and to the authors of Papers presented at these meetings. The very heavy calls which are being made upon the time of those engaged in the foundry industry make it particularly difficult to carry on the normal Branch activities, but in spite of these difficulties about 70 meetings have been held throughout the country. The South African Branch continues to make steady progress.

Educational Work

The following are the results of the examinations held under the auspices of the City and Guilds of London Institute and in conjunction with the Institute in April and May, 1941:—

	No. of candidates.	Pass 1st class.	Pass 2nd class.	Percentage of passes.
Patternmaking—Intermediate grade	28	11	6	60.7
Patternmaking—Final ..	16	2	8	62.5
Foundry practice and science	40	10	12	55.0

Buchanan Medals and Book Prizes were awarded to:—

PATTERNMAKING—*Final.*

Fred Harland Lindsey, Constantine Technical College, Middlesbrough: Buchanan Book Prize.

FOUNDRY PRACTICE AND SCIENCE.

Buchanan Silver Medal.—Frank Hallas, Huddersfield Technical College.

Buchanan Book Prizes.—Donald Colbridge, external candidate of Penistone, near Sheffield; Gordon Benjamin Evans, external candidate of Rochester, Kent; William Hugh Rendall, Dolcoath Technical School, Camborne, Cornwall.

The Council is pleased to note the formation of foundry classes at Ipswich. The establishment of these classes has been due almost entirely to the endeavours of the East Anglian Section of the London Branch, whose members have co-operated with the local educational authorities. It is also recorded that steps have been taken towards establishing foundry classes in the Shropshire area and at Bristol. In this work the Institute is co-operating to the fullest possible extent.

Publications

Volume XXXIV of the Proceedings was published on February 1, 1942. The restrictions on the use of paper together with the smaller number of lectures available for publication limited the size of the volume. During the year a new departure was made in that three Papers were circulated to members of the Institute. It was realised that due to wartime conditions many members would not be able to attend the Branch meetings and this method of publication was

Annual General Meeting of Institute

adopted in an endeavour to help such members. These Papers were presented before several Branches and discussed. Arrangements have been made for a number of Papers to be presented to the annual general meeting, 1942.

Kindred Associations

Cordial relations continue to exist between the Institute and kindred societies. Relations with overseas associations have, however, been suspended with the happy exception of the American Foundrymen's Association, to which an exchange Paper has been sent on behalf of the Institute by Mr. C. H. Kain and Mr. L. W. Sanders. The 1941 A.F.A. exchange Paper was by Mr. N. J. Dunbeck on "American Synthetic Sand Practice."

The Institute has been pleased to note the formation during the year of the Council of Ironfoundry Associations, of which the Institute has been elected an affiliated member. It is represented on the Executive and Finance Committee by the President, and on the Technical Advisory Committee of the Council by the Convener of the Technical Committee and the Conveners of the Cast Iron and the Malleable Cast Iron Sub-Committees.

Council

Four meetings of the Council and twelve meetings of the Executive and other Standing Committees have been held in Manchester, Leeds and Derby. Of the ten members of the Council who are elected by ballot for a period of two years, five retire each year, those who retire at the annual general meeting to be held in London on June 20, 1942, are: Mr. H. Bunting, Dr. A. B. Everest, Mr. J. W. Gardom, and Mr. F. K. Neath. Mr. H. J. Roe, who was elected a member of the Council in 1941 for one year in place of Mr. R. A. Miles, deceased, will also retire at the annual general meeting, 1942. These gentlemen offer themselves for re-election and are eligible for re-election for a further period of two years.

Officers

The Council unanimously recommends that Major R. Miles, M.Eng., be re-elected President and that Mr. D. H. Wood be re-elected Senior Vice-President. The recommendations will be placed before the annual general meeting on June 20, 1942. A nomination for the office of Junior Vice-President for 1942-43 will be placed before the annual general meeting on June 20, 1942.

The Council wishes to express its thanks to Mr. S. H. Russell, Past-President and Hon. Treasurer, for the careful way in which he has conducted the Institute's finances. The Council is also grateful to Mr. J. W. Gardom, Convener of the Technical Committee, under whose direction the Committee has continued to contribute to the war effort. Details of some of the work done by the Committee cannot be published at the present time, the Council nevertheless wishes to thank Mr. Gardom and the Committee for the excellent work which has been done during the past year.

Annual General Meeting, 1941

The annual general meeting was held at the Midland Hotel, Manchester, on Saturday, July 12, 1941, and was preceded by a luncheon and followed by two technical sessions. It was thought inappropriate to arrange a full conference during the war, the programme was therefore restricted to one day. The Council, bearing in mind the same considerations, has arranged a similar programme for the annual general meeting which is to be held at the Waldorf Hotel, London, on June 20, 1942. The annual general meeting will be followed by the presentation of the Edward Williams Lecture, a luncheon, and a number of technical Papers.

Staff

The Secretary of the Institute, Mr. T. Makemson, whose services have temporarily been loaned to the Iron and Steel Control of the Ministry of Supply, was appointed Joint Director for Iron Castings in October, 1941. The Assistant Secretary, Mr. J. Bolton, has been appointed Acting Secretary of the Institute.

RICHARD MILES, President.
JOHN BOLTON, Acting Secretary.

(To be continued.)

STEEL EXPORT POLICY

Lease-Lend arrangements and their bearing on exports of iron and steel were discussed by Mr. Richard R. Stokes, M.P., at the meeting of Ransomes & Rapier, Limited. Unless these arrangements were fairly worked, he declared, we should end the war with the whole of our export trade in the iron and steel industry gone. His understanding of the treaty, especially now that America was at war, was that we should not take advantage of the Lease-Lend arrangements in order to increase our existing markets or to extend into new ones, but surely it was never intended that we should refrain altogether from shipping any machinery abroad to any market, which was the policy being followed by the Board of Trade at the present time, unless the Americans specifically stated they did not want that market.

PLANNED ECONOMIC CONTROL IN THE POST-WAR PERIOD

Organised Production and Distribution on a National Group Basis Urged in Transitional Period

By Major R. MILES, M.Eng.

At the Annual Conference of the Institute of British Foundrymen, held in London on June 20, Major R. Miles, on the occasion of his election to be President of the Institute for the second year, gave a brief address outlining suggestions for lessening the economic difficulties to be faced in the immediate post-war period. The full text of his address is given below.

"This is the second time that I have had the privilege of inflicting a Presidential Address upon you. Owing to the war, it is again not expedient to review and to publish information relating directly to the foundry industry, which is taking so important a part in the war effort. I propose, therefore, to continue, in some measure, the discursive remarks I made last year. These dealt, you may remember, with some of the broader issues arising out of the present situation, in so far as they affected the individual, and especially the individual foundryman. On this occasion, the greater portion of my brief address will be devoted to suggestions for lessening the economic difficulties that will confront us in the immediate post-war period.

The evidence to date indicates that it may be some time yet before we win the war; but it will no doubt take a long time to prepare the reconstruction on the necessary world-wide scale, especially if we are to avoid the difficulties that have always followed the upheavals due to major wars. These preparations will entail planning ahead in some detail, and I am still of the opinion that we shall have to submit to a considerable degree of "control" for some time after hostilities are over.

Reasonable Standard of Living

Fundamentally we must assume a reasonable standard of living. In fact, it is only fair and right that all who are willing to earn a living for themselves and their families should be given an opportunity to do so. Obviously, the only way to earn a living is either to be self-sufficient or to produce goods or services which can be exchanged. Our social organisation to-day is such that the individual is very rarely able to be self-sufficient. Hence the predominating way of earning a living is to produce goods or services which can be exchanged. Under a system of "laissez-faire," employment was determined by its efficiency and usefulness, provided capital was available. This arrangement was sound in that it corresponded with the natural arrangement of the survival of the fittest, and to interfere with it seemed like abrogating the natural order, and putting reason in its place. But man's reason has continually expanded, and I almost think that we have reached a stage where reason should be able to exercise considerable control of man's economic satisfaction. It is a matter of organisation, or, to use the words with which I began this line of thought, of "planning" and "control." Hitherto our technique in this has been poor. But how are we to learn the necessary technique?

As illustrating the difficulty, I could take the case of a hypothetical firm, which employs some 5,000 men. This means that the livelihood of 15,000 to 20,000 people depend directly on the firm being employed, and maybe as many more indirectly. Most works are working over "normal" capacity to-day. A considerable proportion of production is of material that is not required in peacetime. What will be the number of men employed by any firm so placed when peace breaks out again? And what is going to happen to the remainder? Can a scheme be worked out stabilising a given number of peacetime employees and making appropriate arrangements for the others? As the products of a typical large-scale works may range from needle wire to tanks, and multifarious industrial plant, it would obviously be very difficult to make progress by starting at the bottom in such a works; and with the thousands of other works which would require similar consideration.

Incidentally, I may interpolate here that in the case in mind dividends represent 1 per cent. of the turnover. It seems to me that those who spend their time arguing about the administration of some 1 per cent. of the whole have lost their sense of proportion. Politicians are especially prone to such arguments, and this alone would seem to be an indictment of the present party system. The immediate post-war danger will not be the continuation of the perennial conflict between the

Planned Economic Control

"haves" and "have-nots," but the avoidance of a situation where very large numbers of people "have not." If hope is included in the "having not," the situation will be serious indeed. We are all agreed that the outstanding consideration is that a reasonable standard of life must be maintained. Our capital—savings, stocks of goods—will be very greatly depleted by the war. Hence the reasonable standard of life must be earned currently.

Organisation in National Groups

The difficulty lies in the organisation of this production, and its distribution to the points of consumption. As I have previously stated, a plan starting from the bottom with the employment of individuals, will soon become too complicated to complete, but it is possible that a fundamental plan could be worked out for major articles of consumption to obtain a rough volume of consumption per annum. It could be done by assuming a certain standard of living, of say a National Group, converting that standard into pounds of this, and yards of that, and so on, that each person requires each year to maintain the assumed standard. I am referring now to the major necessaries, and the calculations would be simplified by taking the minimum quantities of each required to maintain the standard laid down. Having obtained the volume per individual you multiply this volume by your number of individuals in the National Group and obtain the requirements of the Group. You then add all the National Group totals together, and get the grand total of consumption.

I believe it to be a fact that the grand total of production could exceed the grant total of consumption; hence the next step would be to allocate the required production, distributing the effort as nearly as is possible *pro rata* to the consumption, not only to keep everything as fair as possible, but to reduce the transference of other means of exchange to a minimum. Local geographical conditions would have to be borne in mind for various reasons, most of them obvious. A scheme of this sort could be worked amongst such National Groups as would desire to take part, and for the major necessities. Incidentally instead of a "dole," non-transferable coupons or "points" rationing could be instituted for those whose labour could not be immediately absorbed in the main plan.

Post-War Employment

There would remain, I am sure, a large balance of unexpended effort, which could be applied with considerably less control, in the first place, to less necessary consumption goods, in the second place to public works or other capital goods; and in the third place to luxuries. I emphasise, however, in view of the many ill-informed expressions of opinion to the contrary, that the primary absorption of man-power after the war must be in the production of consumption goods, though there is bound to be a certain amount of overlapping both in definition and in time.—You will notice I do not place public works schemes first on the list.—One difficulty that might be raised, is that the National Groups would not agree amongst themselves upon their relative standard. This difficulty would not be so great if the "grab-all" spirit were eliminated, and if the big and strong National Groups would act as older brothers in a family; or rather as older brothers should act in a family. Invidious direct comparisons might be avoided by bulk exchanges of commodities, provided that no matter how poor the Group, they received their minimum standard, if they showed the willingness to work, and could provide some exchangeable commodities.

You can see how easy, one might say inevitable, it would be to slip back, and come to some equilibrium on a system very much like the present, but on a National Group scale, instead of an individual scale. I see no reason to doubt that history will repeat itself. Fourteen hundred years ago we had several kingdoms in England. Eight hundred years ago England and Wales were divided. Four hundred years ago Scotland was a separate country. We may have gone backwards in the case of Ireland, but Ireland is exceptional in many ways. It seems, then, that by a long process of trial and error, many trials and many errors, we shall achieve a Federation of the World, but I have no doubt that we shall still have a carrot just before our noses. If not the same old carrot, perhaps a bigger and better carrot, or maybe the best carrot of all, the ideal carrot, our advanced physicists having proved by that time that the ideal carrot is the real carrot, and will use a development of the quantum theory and wave mechanics to explain why it isn't there when we are not thinking about it!

Some Common Fallacies

Nonsense apart, all I wish to convey is that there is no ready solution "just round the corner." The man who prescribes a panacea for our social ills is a quack, and has not given the subject deep thought. For instance, we hear a lot about the elimination of class distinctions. Class distinctions will not be eliminated. While sets of people have

(*Continued on page* 210.)

LOW-TIN AND TIN-FREE BRONZES AND BRASSES

Introductory Outline of Reports, and Part I: Silicon Bronzes as Casting Alloys

By MEMBERS OF THE NON-FERROUS SUB-COMMITTEE OF THE TECHNICAL COMMITTEE

The Non-ferrous Sub-Committee of the Technical Committee is composed of the following members: Dr. L. B. Hunt (Convener), Mr. J. Arnott, Mr. G. L. Bailey, Dr. J. W. Donaldson, Mr. F. Dunleavy, Mr. G. Elston, Mr. E. J. L. Howard, Mr. F. Hudson, Mr. A. Logan, Mr. H. J. Miller, Mr. A. J. Murphy, and Mr. F. W. Rowe. The Reports presented and discussed at a special non-ferrous session of the Annual Conference of the Institute of British Foundrymen in London on June 20, comprised the following sections:

Foreword

Part I.—Silicon Bronzes as Casting Alloys.

Part II—Properties of Sand-Cast Low-Tin Content Gunmetals and Brasses, by F. Hudson.

Part III.—The Founding of Types A and B Brasses.

FOREWORD

In consequence of the present need for economy in the consumption of tin, the Non-Ferrous Sub-Committee has had under consideration the use in the foundry of alloys free from tin or containing lower percentages of tin as substitutes for Admiralty gunmetal and similar bronzes. Guidance was sought from the Sub-Committee by Government Departments on this matter, with particular reference to the possibilities of producing castings in alloys lower in tin than has been customary, and of making greater use of cast brasses that can be made from available scrap.

Concurrently the British Standards Institution has given consideration to the same matter, and has drawn up War Emergency Specifications for two additional gunmetals, for two grades of cast brass, a silicon-bronze and an aluminium-bronze. These new specifications have now been issued and are as under:—

B.S.S. 1021/2 88/8/4 Gunmetal Ingots and Castings.

B.S.S. 1023/4 86/7/5/2 Gunmetal Ingots and Castings.

B.S.S. 1025/6 Brass Ingots and Castings, Type A.

B.S.S. 1027/8 Brass Ingots and Castings, Type B.

B.S.S. 1029/30 Silicon Bronze Ingots and Castings.

B.S.S. 1031/2 Aluminium Bronze Ingots and Castings.

It is necessary that every consideration should be given to the substitution, wherever this is practicable, of one or other of these alloys for a material high in tin content. It is proposed by the British Standards Institution, and by the Government Departments concerned, that for the duration of the war the use of Admiralty gunmetal of the 88/10/2 type (B.S.S. 382/3) should be severely restricted, that leaded gunmetal of the 87/9/3/1 type (B.S.S. 900/1) should not be used, and that the alternative alloys prepared as far as possible from scrap should be substituted. Supplies of scrap will not, however, suffice to produce all the gunmetal required, and it is, therefore, proposed that, when virgin metals are used, gunmetals of the 88/8/4 type be made. Further details of the recommendations made by the British Standards Institution in regard to the types of use to which the new alloys should be put will be found in the foreword to B.S.S. 1021-8.

One of the major points raised during the Sub-Committee's discussions concerned the foundry characteristics of the silicon bronzes. It was felt that, while good-quality castings could readily be produced by experienced foundries in these alloys, some difficulty might be met by those not accustomed to their use. It was not felt possible, therefore, to make general recommendations for the substitution of silicon bronzes for tin bronzes, but it was thought desirable to have some authoritative guidance on foundry technique made available to such foundries as might consider the casting of silicon bronzes. Accordingly, a small panel appointed by the Sub-Committee, comprising Mr. M. C. Oldham, Dr. W. O. Alexander and Mr. G. Elston, kindly undertook to draft such recommendations. The report of this panel forms the basis of the accompanying Paper on "Silicon Bronzes as Casting Alloys," and the Sub-Committee wishes to

place on record their indebtedness to the three gentlemen concerned for their co-operation and assistance.

As a further guide to the properties and applications of the low-tin bronzes and brasses, Mr. F. Hudson has compiled a comprehensive review of the literature on this subject, and his Paper on "Properties of Sand-Cast Low-Tin Content Gunmetals and Brasses" follows the report on the silicon bronzes.

Thirdly, two other members of the Sub-Committee, Mr. J. Arnott and Mr. E. J. L. Howard, undertook practical tests on the foundry characteristics of the low-copper-content brass covered by B.S.S. 1028. Whereas no difficulty should be experienced with brass of Type A or of Type B, provided that the copper content is on the high side of the specification limits, it was thought possible that some difficulties might be experienced in running the Type B alloy when the copper content was on the low side, particularly with an appreciable aluminium content. In that case, moulding methods similar to those employed for the manganese bronzes would, it was thought, become necessary. A short Paper by Mr. Arnott and Mr. Howard covering this point concludes the Sub-Committee's report.

PART I.—SILICON BRONZES AS CASTING ALLOYS

Silicon bronzes have recently been made the subject of British Standards War Emergency Specification No. 1030. This specification, together with a number of other new or revised specifications, originated in the present urgent need for economy in tin and for the replacement, wherever practicable, of high tin-content bronzes by alloys free from tin or containing lower percentages of that metal.

Although the silicon bronzes are capable of giving reliable castings of good mechanical properties, it is felt that difficulties might be experienced in foundries having no previous experience of these alloys. The Non-Ferrous Sub-Committee considered, therefore, that while it was not in a position to make general recommendations concerning the use of silicon bronzes as substitutes for tin bronzes or gunmetals, it might be useful to give some guidance on foundry technique to those foundries who may contemplate producing castings in silicon bronzes.

The following notes have, therefore, been prepared on the properties of silicon bronzes and on the technique which has been found successful by those with long experience in the casting of such alloys.

Specification Requirements

B.S. War Emergency Specification 1030 gives the following limits of composition:—

Si	1.50 to 5.00 per cent.
Mn	1.50 per cent. maximum.
Zn	5.00 „ „ „
Fe	2.50 „ „ „
Total elements other than copper and those specified above	0.50 „ „ „
Cu	Remainder.

The mechanical properties called for in the specification for either separately cast or cast-on test-bars, are:—

Ultimate tensile stress, 20 tons per sq. in. minimum.

Elongation, 15 per cent. minimum.

General Casting Properties

The silicon bronzes are capable of giving close grain, homogeneous castings of high strength, toughness, good resistance to corrosion and suitability for pressure work. When molten they are very fluid, producing sharp and well-defined castings from sand moulds. They can also be cast by the centrifugal process and in chilled moulds.

Physical and Mechanical Properties

Silicon bronzes possess approximately the following characteristics:—

Density (cast)	8.4 gm. per c.c.
Weight per cub. in. ..	0.92 lb.
Shrinkage	$\frac{5}{32}$ to $\frac{3}{16}$ in. per ft.

In practice the mechanical strength of silicon bronzes ranks well above that obtained with the gunmetals and similar alloys in which tin is an important constituent. Standard test-pieces cast in green sand give the following average properties:—

Ultimate tensile stress, tons per sq. in. ..	22
0.1 per cent. proof stress, tons per sq. in.	9
Elongation per cent. on 2 in.	20
Brinell hardness (10 m.m. ball, 500 k.g. load)	90

Suggestions for Foundry Technique

Silicon bronzes may be melted without difficulty in pit fires or tilting furnaces of the coke-, oil- or gas-fired types. Melting should be carried out as

quickly as possible, exposure to the furnace atmosphere being kept to a minimum. The melt may be kept well covered with a gasless flux, such as ordinary bottle glass, cryolite or sal-ammoniac. In cases where the liquid slag is very fluid, a sprinkling of dry silica sand may be used to thicken it so that it may be readily skimmed prior to casting.

The molten metal should not be allowed to remain in the furnace too long after the casting temperature has been attained. Excessive stirring or puddling during melting should be avoided, as this is not only unnecessary but tends to disturb the protecting cover, and may cause gas pockets in castings as a result of contamination of the metal by furnace gases. The metal should be stirred with a graphite stirrer or a coated iron rod. Care should be taken not to overheat the alloy.

Scrap can be added to furnace charges in the usual amounts without detriment to the castings produced. Great care should, however, be observed that no damp or oily scrap is melted in that condition. The average casting temperature is in the neighbourhood of 1,130 deg. C., this being modified as required to suit thick or thin sections. The alloy has considerable fluidity, therefore thin sections can be successfully cast.

The characteristic of all silicon bronzes is their short freezing range, approximately 50 deg. C., and shrinkage therefore takes place at a greater speed than in the gunmetals. This necessitates special attention to the feed requirements, heads and runners of generous size being required. Various moulding methods may be employed for casting silicon bronzes providing the above points receive due attention. Where the design of the castings is such that adequate feeding metal cannot be introduced, chilling may be resorted to with advantage.

As regards moulding and core making sands, silicon bronzes cast well with the usual types of sand used for other non-ferrous alloys as gunmetal, phosphor bronze and manganese bronze, and ordinary facings as lithite and plumbago give good results when used with green sand or dry sand moulds. Care should be taken, however, to ensure ample permeability, as impermeability produces skin porosity. Silicon bronze castings are clean when removed from either green or dry sand moulds, providing an unduly high casting temperature is avoided. Castings removed from the moulds while red hot will not scale unduly in the atmosphere.

Scrap Contamination

It is understood that contamination of the tin bronzes, and of gunmetal in particular, by silicon bronzes may occur in mixing machine-shop swarf, etc., and that it is particularly detrimental to the properties of remelted gunmetal. While careful supervision of scrap is the obvious solution to this problem, in the event of accidental admixture occurring, silicon bronzes can be identified from other alloys by a simple test described in the appendix.

Welding

Cast silicon bronzes are readily weldable by the autogenous acetylene or arc methods, and castings containing sand-holes or blow-holes can be salvaged readily by welding these defects. When oxy-acetylene welding, a distinctly oxidising flame should be employed, rod or wire of the same composition being employed. A suitable flux is composed of 9 parts fused borax and 1 part sodium fluoride.

SPECIFIC ALLOYS

The above general data on silicon bronzes refer particularly to P.M.G., marketed by Vickers-Armstrongs, Limited, and Everdur, marketed by I.C.I. (Metals), Limited. It will be appreciated that, as these two alloys were developed independently, certain differences may arise in practice, and some further details of their individual properties are therefore given below.

P.M.G. Metal

The preferred composition within the specification range, and the one to which the alloy is normally supplied, is as follows:—

Si	.. .. ..	3.0 to 4.0 per cent.
Fe	.. .. ..	1.4 to 2.0 per cent.
Mn	.. .. ..	1.0 per cent. maximum
P	.. .. ..	0.1 per cent. maximum
Zn	.. .. ..	1.5 to 2.5 per cent.
Cu	.. .. ..	Remainder

Typical mechanical properties are as quoted under the general information for silicon bronzes: The freezing range of P.M.G. is 950 to 900 deg. C. At the higher temperature the alloy is completely fluid. During melting, a precautionary measure against oxidation is to spread charcoal over the surface of the molten metal. In all melts, a small quantity of phosphor copper, say ¼ lb. to 100 lbs., assists deoxidation. Sal-ammoniac is a good flux to use prior to casting.

Segregation of scrap, as mentioned generally for silicon bronzes, is of particular importance in reference to tin and lead contamination, which should be avoided. Iron, manganese and zinc contamination are, however, not detrimental. Repeated remelting can take place with very small melting

loss. P.M.G. is particularly suitable for marine engine castings, especially those for which high test pressures are specified. Its corrosion resistance is good for general marine specifications, being superior to gunmetal against sea-water corrosion and marine atmospheres.

Everdur

The typical chemical composition of Everdur for sand castings is as follow:—

Si	3.0 to 4.0 per cent.
Mn	0.5 to 1.5 per cent.
Zn	0 to 1.0 per cent.
Impurities	0.5 per cent. maximum
Cu	Remainder.

Typical mechanical properties as cast are as follow:—

Ultimate tensile stress	23 tons per sq. in.
Elongation ..	18 to 25 per cent. on 2 in.
Izod impact strength	30 to 60 ft./lbs.
Brinell hardness ..	70 to 95

When annealed for half an hour at 700 deg. C. and slowly cooled, the following properties are observed:—

Ultimate tensile stress	22 to 26 tons per sq. in.
Elongation ..	22 to 30 per cent. on 2 in.
Izod impact strength	40 to 55 ft./lbs.
Brinell hardness ..	65 to 90

The freezing range of Everdur is 950 to 1,000 deg. C., at the latter temperature the alloy is completely fluid. In melting Everdur, it is advantageous to employ a slightly oxidising atmosphere in order to preclude the possibility of gas pick-up, and for this reason a charcoal cover to the melt must be avoided. Everdur is not unduly detrimentally affected by the presence of small amounts of the normal types of impurities. For example, the presence of lead somewhat increases machinability, while aluminium adversely affects the weldability but increases the tensile properties. Amounts of tin up to 1.0 per cent. can also be present in this alloy without giving any adverse properties. It will be noted from the typical composition that zinc may be present in moderate amounts as an intentional addition. Consequently segregation of Everdur scrap from the bronzes and brasses in order to avoid contamination of the former, while desirable, is not essential. However, as has been outlined in the general description of silicon bronzes, gunmetals are detrimentally affected by the presence of silicon.

The ductility, toughness and resistance of the metal to pressure may be improved by a simple annealing for ½ to 2 hrs. at 700 deg. C., followed either by quenching or slow cooling. A further advantage of annealing is that casting strains may also be removed. Everdur is an alloy which was primarily developed for use in chemical manufacture, and as such has been in use for fifteen years. The alloy is therefore superior to copper in resistance to corrosive materials whether solid, liquid or gaseous. It exhibits particularly good resistance to seawater corrosion and marine atmospheres.

The heaviest casting known to have been made in this country in Everdur was a bowl for chemical plant weighing approximately 11 cwts. On the other hand, small parts made for multiple running are being produced equally successfully for aero-engine parts, a high rate of production being achieved with total rejections as low as ⅛ per cent.

APPENDIX

Rapid Workshop Test for Distinguishing between Silicon Bronzes and other Bronzes and Brasses in the Form of Machine Swarf

The following simple tests have been devised to distinguish between silicon bronzes and certain other alloys, particularly gunmetal.

Nitroprusside Test

Solutions Required.—(1) 5 per cent. aqueous sodium nitroprusside solution, and (2) 5 per cent. aqueous hydrogen peroxide solution. Five volumes of 20 vol. hydrogen peroxide diluted to 100 vol. with distilled water.

Place a small portion of drillings or turnings in a test tube and cover with sodium nitroprusside solution. Hold the end of the tube over a Bunsen flame until the solution boils, and maintain for 1 to 2 min., remove the test tube from the flame, and after a few seconds decant the solution from the drillings. Wash out the test tube with tap water without removing the drillings and add a little hydrogen peroxide solution. The surface of silicon bronze drillings immediately turns dark blue in colour, while gunmetal is unaffected. This test will also differentiate silicon bronzes from 95/5 tin bronze, manganese and aluminium bronzes, and the brasses such as 97/3, 90/10, 70/30, aluminium, Admiralty and high tensile. Copper and cupro-nickel also give the reaction with sodium nitroprusside, but these are unlikely to be confused with silicon bronzes.

(*Continued on page* 210.)

STANTON *Dale* REFINED PIG IRON

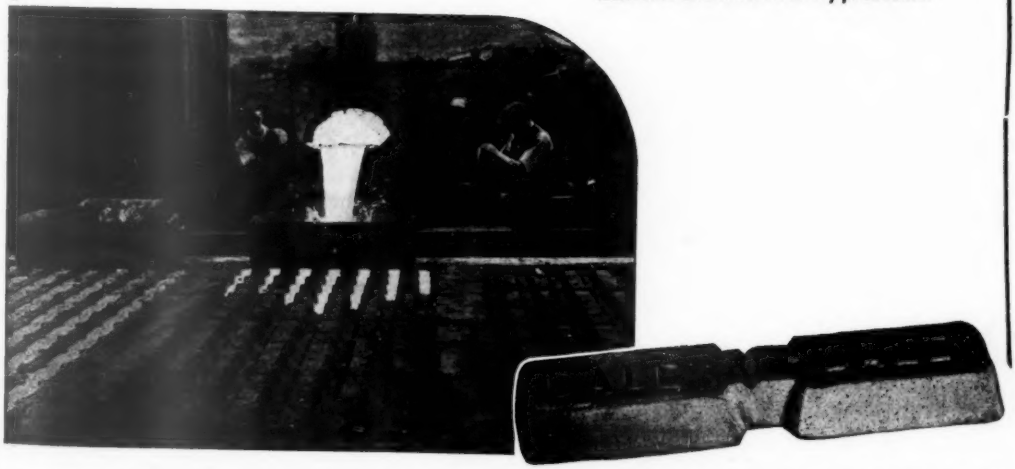
IS CHARACTERISED by closeness of grain structure, uniformity of composition and fine graphitic carbon evenly distributed.

IS PRODUCED to guaranteed analysis in seven standard grades.

CAN BE MADE to customers' individual requirements with total carbon from 2·6 per cent. upwards.

SHOULD BE USED to tone up high phosphorus irons and scrap, to replace Hematite, and to produce castings for all high duty purposes.

Users are invited to avail themselves of the Stanton Technical Service which offers free expert advice on special mixtures and other Foundry problems.



THE STANTON IRONWORKS COMPANY LIMITED, NEAR NOTTINGHAM

PLANNED ECONOMIC CONTROL IN THE POST-WAR PERIOD

(*Continued from page* 204.)

interests similar to each other and different from other sets, so these sets will form classes, irrespective of their worldly wealth. There are people who climb Snowdon, and people who come down the switchback at Blackpool.

"Capitalistic system" is another expression in my opinion erroneously used. By it is invariably meant the "system whereby the private individual can accumulate excessive amounts of capital." All modern production requires capital. The most common form of capital is the bridge which is built to span the gap between the time of production and the time of consumption. The tea in your cup of tea at breakfast was grown by a coolie who required paying a year or two ago. You only paid for your tea last week—if you have paid for it. To bring the tea to this country somebody paid for a ship years ago, and capital is what pays for things years ago so that you can have them to-day. Thus capital is necessary under to-day's conditions. In the robber barons' days their capital was their strong right arm. Germany's capital to-day is its soldiers and their equipment, though they are both being used as revenue and are consequently very heavily taxed!

Return on Capital Indispensable

Whether the State or the private individual controls the use of capital is of secondary, though many people think it of primary, importance. Inevitably modern production methods demand units of increasing size, and frequently only the State can supply the necessary capital even now. The tendency will increase, perhaps even too fast to enable bureaucrats to learn technical efficiency, or technicians to become bureaucrats, as say, in your own cases. There may be some examples, too, where the State, for sentimental reasons, perhaps quite important, and adding to the sum of human happiness, may be content to receive only one grain of corn where two grew before. Even private capitalists have been known to expend large sums for no material return to themselves. But whether capital is employed by the State or the individual, there must be some return on the whole, if material progress is to be made.

Whether the use of private capital in the form of money persists or not, people will always make rewards to their favourites who possess other forms of capital, such as the good looks of the film star, whom democracy rewards very handsomely to-day, or the loud voice of the politician whom they rewarded perhaps in other ways when eggs and perhaps politicians were more plentiful. I do not wish you to infer that I think the whole system so complicated that any large changes for the better are impossible to work out, but I do wish to repeat the warning to suspect sweeping and wholesale claims for any special system.

I believe that the transitional difficulties that I have implied will not impair my main theory of working to an approximate calculation of the minimum major needs, at any rate amongst those national groups who will "play." I would repeat that complete solutions will almost certainly never be within our immediate grasp; but we must all work with goodwill—I emphasise goodwill—and even do a bit of wishful thinking as Mr. Oliver Lyttleton recommended the other day, to make the world, and especially our own immediate world, happier and better as a result of our efforts.

LOW-TIN AND FREE-TIN BRONZES AND BRASSES

(*Continued from page* 208.)

Ammonium Sulphide Test

A convenient and simple method of distinguishing between silicon bronzes and certain other alloys is by means of a spot test involving the use of ammonium sulphide solution. With this reagent both silicon bronzes and gunmetal give a black stain when a spot of the solution is applied, but this is not shown with brasses containing manganese, aluminium or tin, or the manganese and aluminium bronzes. Copper and (97/3, 90/10) brass give a black stain with ammonium sulphide, and this reagent is therefore best used in eliminating certain classes of material before applying the nitroprusside test.

(*Parts II and III will appear in subsequent issues.*)

MACHINERY EXPORTS

Licences will, in future, be required to export the following classes of goods to all destinations:—Air-conditioning appliances and machinery incorporating fans or blowers; conveyors, cranes, hoists, lifts, stackers, telphers, transporters and other elevating, handling, hauling, lifting, loading, unloading and winding machinery; dredging, earth moving and quarrying machinery; hydraulic machinery other than machine tools; machinery of the kinds used for agitating, crushing, grinding, mixing, separating, screening, sifting, sorting or washing mineral products; pneumatic machinery other than machine tools; stone working machinery; hardness testing machines and parts thereof.

THE STREAM FLOWS *ON*

The stream of discovery and improvement flows on, despite the difficulties of the times. By laboratory experiment and practical trial, Workington are carrying forward researches into many aspects of improvements to their manufactures. Ultimately this work will prove of the greatest benefit to those who make use of Workington products.

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COMPANY NEWS

(Figures for previous year in brackets.)

Darwins—Ordinary dividend of 6% (5%).

Beans Industries—Interim dividend of 10% (same).

Vokes—Net profit for the year to June 30, 1941, £3,607; dividend of 12½%.

Turner & Newall—Interim dividend on the ordinary shares of 3¼%, less tax at 9s. 7d. in the £.

Allied Ironfounders—Final dividend of 7½%, plus a cash bonus of 2½%, on the ordinary capital, making 12½% (6%).

Barrow Hematite Steel—Net profit for 1941, after payment of interest charges and writing off depreciation of fixed assets, £11,531 (£83,191); forward, £28,424 (£16,893).

Cannon Iron Foundries—The date of termination of the financial year is to be altered from September 30 to June 30, and the next accounts will be prepared for the nine months to June 30, 1942.

Whessoe Foundry & Engineering—Trading profit to March 31, £183,479 (£178,912); depreciation, £7,234 (£7,824); tax, £98,244 (£97,049); net profit, £62,066 (£50,761); dividend of 40% (same); forward, £40,158 (£41,503).

Mellowes & Company—Profit for 1941, after depreciation, £47,368 (£44,027); employees' pensions, £2,500 (same); war contingencies, £2,000 (£1,000); tax, £29,000 (£27,000); net profit, £11,941 (£12,000); final ordinary dividend of 10%, making 20% (same); forward, £1,320 (£1,129).

Ambrose Shardlow—Net profit for the year ending March 31, after providing for A.R.P. expenditure, income-tax and E.P.T., £34,645 (£34,830); reserved for depreciation in addition to that written off, £10,000; dividend on the 7½% cumulative preference shares, £13,125; ordinary dividend of 7½% (same); forward, £27,803 (£29,408).

John Brown & Company—Profit for the year ended March 31 last, after providing reserves for taxation and contingencies, £537,214 (£591,934); debenture interest, £89,514 (£90,000); depreciation, £64,823 (£67,992); dividend on the ordinary shares of 10% (12½%), tax free; to reserve for contingencies, £100,000; forward, £221,431 (£211,027).

Ruston & Hornsby—Trading profit to March 31, £400,367 (£395,991); dividends from subsidiaries, £33,645 (£57,352); provision for tax, £200,719 (£216,412); debenture interest, £15,750; net profit, £216,222 (£219,359); ordinary dividend of 12½% (same), £153,750; preference dividends, £23,500; to reserve for post-war stock losses and other contingencies, £25,000; to reserve, £21,825 (£25,000); forward, £59,273 (£67,125).

Derbyshire Stone—Combined profits for 1941 of the company and its subsidiaries, before providing for depreciation and income-tax, but after provision for E.P.T., £69,971 (£68,025); depreciation, £17,539 (£17,295); income-tax of the group, after deducting £16,507 (£15,629) for income-tax on dividends paid and payable, £7,502 (£3,617); war damage contributions reserve, £1,379 (£4,000); dividend on the ordinary shares of 10% (same); forward, £49,812 (£39,276).

PERSONAL

LORD GLENCONNER has joined the board of Imperial Chemical Industries, Limited.

PROF. T. TURNER has with Mrs. Turner returned after a prolonged absence to their home at Netherside, Elm Drive, Leatherhead, Surrey.

MR. WILLIAM LEONARD BARROWS has been elected a director and deputy-chairman of Evered & Company, Limited, brassfounders, etc., of Smethwick.

MR. T. H. MARTIN-HARVEY has been elected deputy-chairman of British Insulated Cables, Limited. Mr. B. Welbourn has been appointed a director of the company.

LIEUT. (TEMPORARY CAPTAIN) HAROLD WHITELEY FIRTH, M.C., a member of the firm of Fred Firth & Sons, ironfounders and constructional engineers, of Batley, Yorkshire, has been awarded the O.B.E. (Military Division) for meritorious services. He was awarded his M.C. in the last war.

MISS MARGARET THORNTON, whose marriage was recently announced, will continue for the duration of the war in her capacity as a director and secretary of the Yorkshire Repetition Castings Company, Limited, Bradford. Her father is well known in foundry circles and is a past-president of the West Riding of Yorkshire Branch of the Institute of British Foundrymen.

MR. W. H. LOBER, of Sydney, Australia, and formerly of Barnsley, has opened a new concern which he has named "The Holmfirth Foundry Company" in memory of his grandfather's apprenticeship to ironfounding at Holmfirth, in Yorkshire. This was revealed in a letter received last week by Holmfirth Urban District Council from Mr. Herbert Alexander, well-known Leeds engineer and business friend of Mr. Lober.

OBITUARY

MR. RICHARD THOMAS DURRAN, a director of the Skefko Ball Bearing Company, Limited, and other engineering companies, died recently at the age of 66.

MR. WILLIAM EDWARD HUGHES, founder and chairman of W. E. Hughes & Company, Limited, tinplate and blackplate merchants and agents, of London, died recently. He was 68 years of age.

MR. C. COOK, who had been employed at the Cargo Fleet Iron and Steel Works from 1903 until 1940, when he relinquished his appointment as chief works engineer owing to ill-health, died at Redcar last week.

MR. WILLIAM JOHN BOYD, a director of the Carmuirs Iron Company, Limited, Falkirk, died at Newcastle-upon-Tyne last week, aged 70. He had been engaged in the ironfoundry trade for nearly half a century.

MR. ALFRED LAKIN, principal of A. Lakin & Son, foundry and patternshop specialists, of Totley Rise, Sheffield, died on June 18, aged 70. He took an active interest in the business up to the time of his death. The firm will be continued by his son.

27,964 TONS OF METAL from Balanced Blast Cupola

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firebricks still giving perfect service

—*after six years!*

In July 1934, Glenboig supplied a complete lining for a 45 in. Balanced Blast Cupola to John Lang & Sons, Ltd., Lathe Manufacturers of Johnstone. The cupola, which has a continuously running spout, has already worked 1569 days. The total tonnage of metal produced is 27,964. (The metal is used for high grade machine tools).

The cupola has been operating five or six days and sometimes seven days per week. Not a single brick or split has been used during six years' service. This notable performance is in keeping with the Glenboig reputation for refractories of high consistently uniform quality.

This reputation is jealously guarded by the rigid application of a series of severe tests at every stage of manufacture, and remember—there is a Glenboig firebrick for every firebrick requirement.

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Raw Material Markets

IRON AND STEEL

The second delivery period of the year is due to end on June 30 and producers are now concerned with the completion of their commitments for this period. There should not be any large carry-over, as allocations are made according to estimated production. In the foundry industry there is a keen demand for engineering castings, which are needed for various Government departments in large tonnages, but the call for light castings remains at a low ebb compared with pre-war levels. This is due to the quiet conditions prevailing in the building trade, which, apart from work for the Government, is slack, while exports of light castings have been virtually eliminated. Foundries in this category cannot generally cope with the requirements of the Government, but a few have been able to adapt their plant to meet the revised demands and these are, of course, actively engaged.

Consumption of high-phosphorus iron has fallen off in proportion to the reduced activity in the light foundry trade, but there is a good demand for this type of iron from heavy engineers and speciality foundries, who are utilising it in order to make up for the shortage of supplies of low-phosphorus irons and hematite. Production of these better-quality irons is quite insufficient to satisfy all demands, but consumers have been able to operate satisfactorily by incorporating in their mixtures a proportion of high-phosphorus and refined iron and scrap.

Many buyers of foundry coke are still in the market for considerably larger supplies than they will use in the immediate future, but there is a disposition for them to buy in excess of their requirements so as to have stocks on hand before the winter, when deliveries may fall behind schedule. This policy is appreciated by producers, who are keen to assist buyers to replenish their reserves at a time when ample quantities are to be had. All contracts are subject to a rise-and-fall clause.

On the whole, the steel industry is very busy, the demand for special qualities being particularly insistent, as these are being used extensively in the armament and munition works. Black sheets are only in moderate demand, while very little is moving in galvanised sheets, production of the latter being confined to Government orders. Plates are fully absorbed, shipbuilders, wagon and tank manufacturers accounting for a large proportion of the output.

The tone of the scrap market is perhaps easier than it has been for some time past, but supplies of certain materials are still considerably short of the demand and prospects of improvement are not as bright as could be desired. The compulsory collection of scrap has brought forth very large quantities of railings, etc., and there is now sufficient of this material to satisfy all demands for a considerable period. At the moment, the chief need is for heavy melting steel and short heavy steel, supplies of which are not easy to procure.

NON-FERROUS METALS

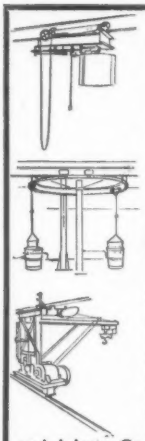
Tin supplies appear to be maintained, but the authorities continue to take steps to reduce consumption where possible, many adjustments having been made in this respect since the Japanese campaign in the East changed the face of the tin situation. Questions were asked in the House of Commons last week about the employment of forced native labour in the Nigerian tin mines. Mr. Macmillan, in his replies, said that the regulations were enacted as a measure of great urgency by the Government of Nigeria to meet the situation resulting from the loss of Far Eastern sources of supplies of tin. He said that it was a considerable shock to this country that 60 per cent. of the world supply of tin was lost to us, and it became necessary to make it good. The profits of the companies would be liable to E.P.T. at 100 per cent., he said, adding that the royalties went very largely to the revenue of the colony. No violation of the International Labour Convention was involved.

While adequate tonnages of copper appear to be forthcoming to satisfy primary war needs, there is certainly no metal to spare for ordinary domestic uses and a close check is being maintained on all applications for licences, which are required for the purchase of fresh supplies. Every effort has been made to scale down consumption of the red metal to the minimum, so that now very little copper is consumed except in war factories. Following the loss of material in the Libyan campaign, British factories will be called upon to make a Hurculean effort to replace these weapons, so that demand for copper is likely to be intensified, this metal being used in many different ways.

There are many difficulties involved in the provision of supplies of spelter for the British war production programme, so that it is not surprising that the Control authorities have imposed very strict conditions on the use of this vital metal. Ingot metal has to be brought to this country from the Dominions, while we have to import all of our ore requirements. Consequently, the shipping question is of paramount importance.

The loss of Burmese supplies of lead has resulted in a tightening up of allocations in this country. Other factors engendering the establishment of stricter supervision of distribution have been the increased calls from our war factories for supplies of lead, the threat to shipments from Australia and the demands made upon our resources by the Soviet Union. So far, not the slightest inconvenience has been felt by priority users of the metal, but general allocations have certainly been materially reduced in the past few months.

Enamelled Evaporators.—Some of the problems involved in the substitution of enamelled evaporators for stainless-steel evaporators were discussed by R. T. Girard and W. H. Dunn at the recent convention of the American Ceramic Society. The authors also described the methods of fabrication, enamelling and testing.



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